The support center and cuspidor are installed on the lower support arm. The support side mounted water bottle, and the cuspidor circuit board are located inside the support center.

This section provides information related to servicing, maintenance, and adjustments. Detail on how to service the cuspidor and troubleshoot specific problems is presented. For information on service parts, see the *Genuine A-dec Service Parts Catalog* or contact A-dec customer service.

How to Identify Support Center Components

The support center houses the cuspidor fill/rinse manifold, cuspidor circuit board, and support side water bottle.

Item #	Part Number	Description
1	77.0034.00	Cover, top
2	77.0036.00	Cover, right
3	77.0037.00	Cover, nose
4	77.0035.00	Cover, left
5	14.0456.00	Cover, water bottle
6	38.1803.00	Cuspidor manifold
7	001.089.00	Screw
8	90.1079.00	Cuspidor circuit board kit
9	77.0232.00	Rotational stop
10	14.0469.00	Bottle receptacle assembly
11	002.112.00	Screw **NOTE**: Torque 13-17 inch lb
12	14.0468.00	Self-contained water bottle assembly

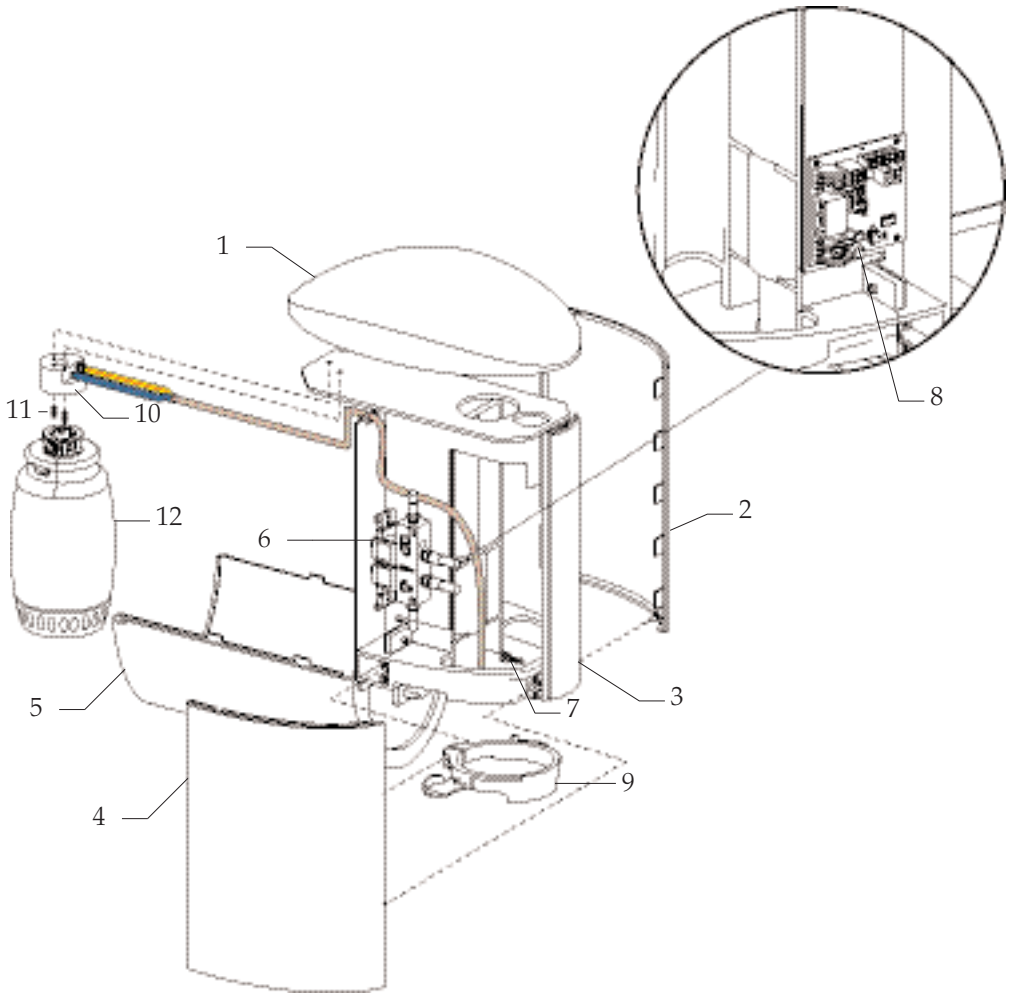


Figure 80. Identification of the support center components.

Support Center Top Housing Cover Replacement

If replacement of the support center top housing cover is necessary, remove the support center top housing cover using these steps.

Cuspidor Removal

1. Remove side covers and water bottle cover.
2. Remove the two screws from under cuspidor support.
3. Disconnect the cup fill and bowl rinse tubings from the cuspidor fill/rinse manifold.
4. Disconnect the three wire connections from cuspidor circuit board
5. Remove the cuspidor by lifting it up and laying it on its side.

Top Housing Cover Removal

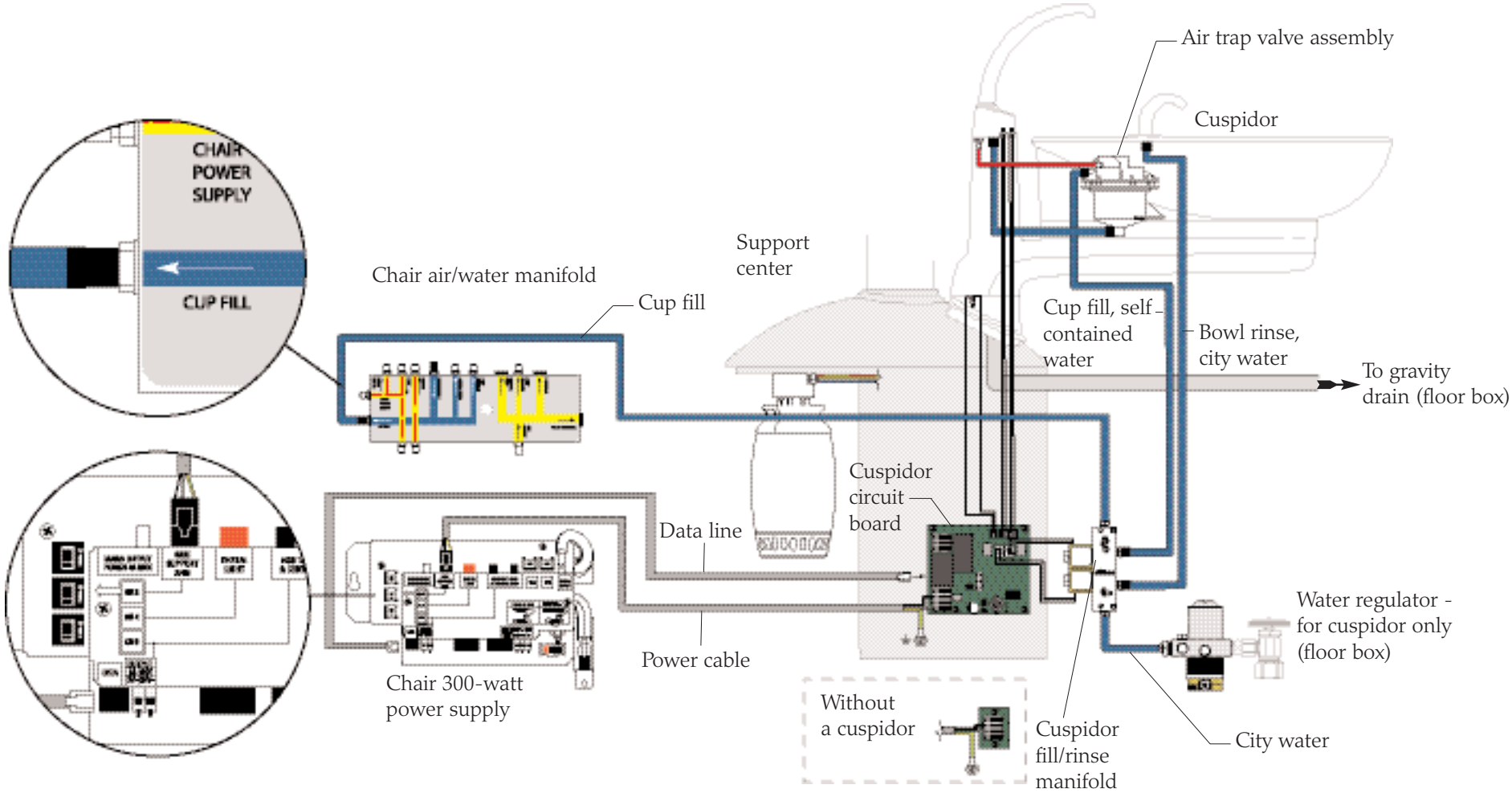
1. Remove the three screws from the top of cuspidor arm and lift off.
2. Remove the screw in the center of swivel and lift off the lower arm.
3. Remove the four screws holding the top cover on the housing, and lift off the top cover.

Top Housing Cover Replacement

Align two screws through lower arm and carefully thread into air trap bracket. Check seam alignment for bowl and arm, and tighten.

Cuspidor and Support Center Flow Diagram

This flow diagram describes the plumbing and electrical connections of the cuspidor and support center.



How to Identify Cuspidor Circuit Board Components (P/N 90.1079.00)

The cuspidor circuit board controls the bowl rinse and cup fill solenoids. The LEDs on the circuit board indicate the status of the cuspidor and can be used for troubleshooting. The circuit board is also equipped with a built-in A-dec relay. The built-in relay functions exactly like the A-dec relay module.

Item #	Description
1	**P5** - DCS terminals
2	**J1** - Ø VAC terminal strip
3	**J2** - 24 VAC terminal strip
4	**P4** - Cuspidor limit switch connector
5	**P2** - Bowl rinse switch connector
6	**P3** - Cup fill switch connector
7	**P1** - A-dec relay selection header
8	**DS5** - Bowl rinse relay LED
9	**DS6** - Cup fill relay LED
10	**DS4** - Auxiliary relay LED
11	**DS1** - AC power LED
12	**DS2** - Status LED
13	**DS3** - Data LED
14	**DS7** - Limit switch LED

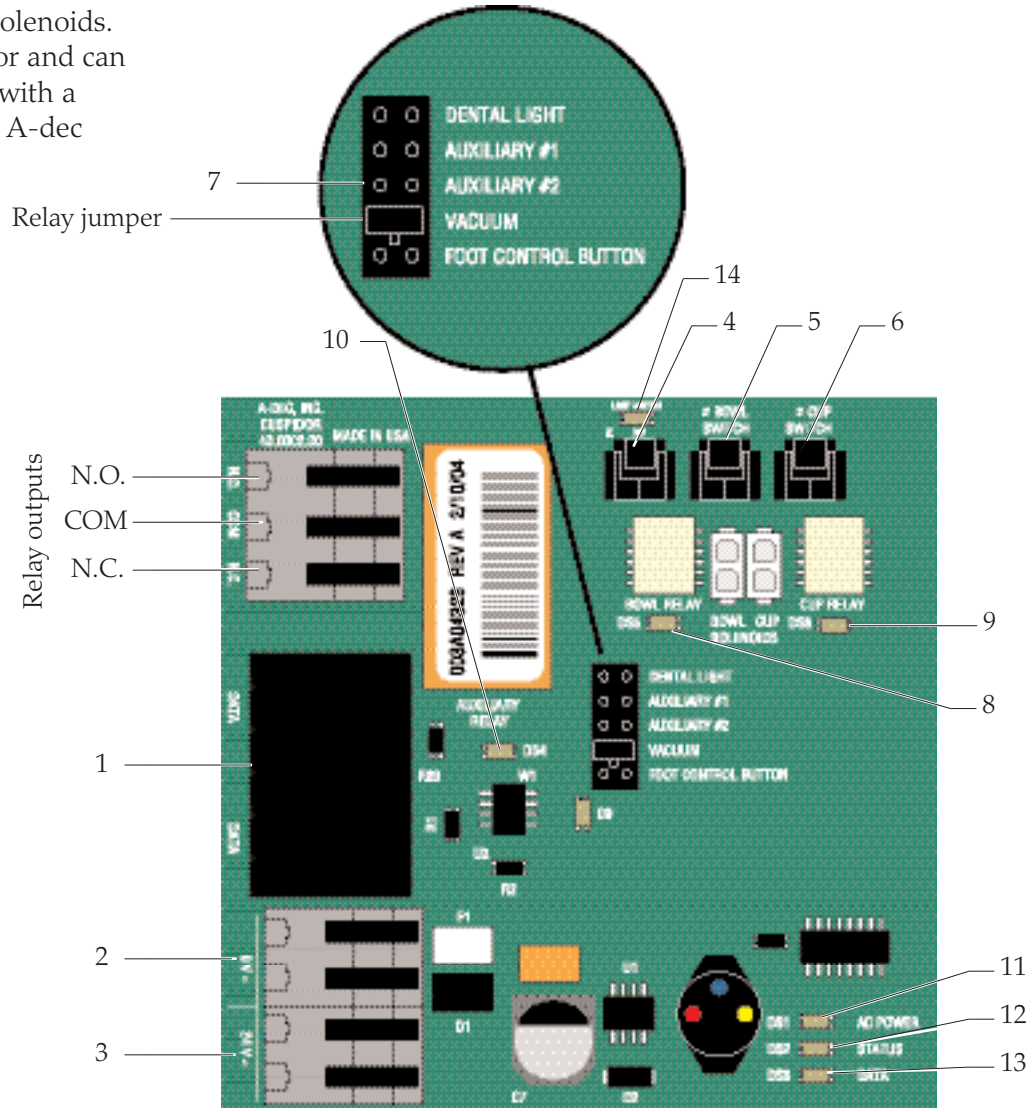


Figure 81. Cuspidor circuit board components.

How to Identify Cuspidor Components

Upper Assembly

The cuspidor is preset with an automatic timed cup fill and bowl rinse. Both the cup fill and the bowl rinse functions can be reprogrammed.

Item #	Part Number	Description
1	77.0043.01	Cup fill spout
2	77.0042.01	Bowl rinse spout
3	77.0044.00	Spout gasket
4	77.0099.00	Bowl rinse button
5	77.0100.00	Cup fill button
6	005.088.00	Screw
7	77.0038.00	Cuspidor bowl
8	75.0035.01	Bowl screen, pkg 5
9	004.005.02	Washer, pkg 10
10	023.811.00	Barb
11	023.805.01	Barb, pkg 10
12	43.0010.00	Bowl rinse and cup fill switch assemblies
13	006.009.00	Nut
14	004.132.00	Washer
15	004.035.00	Washer

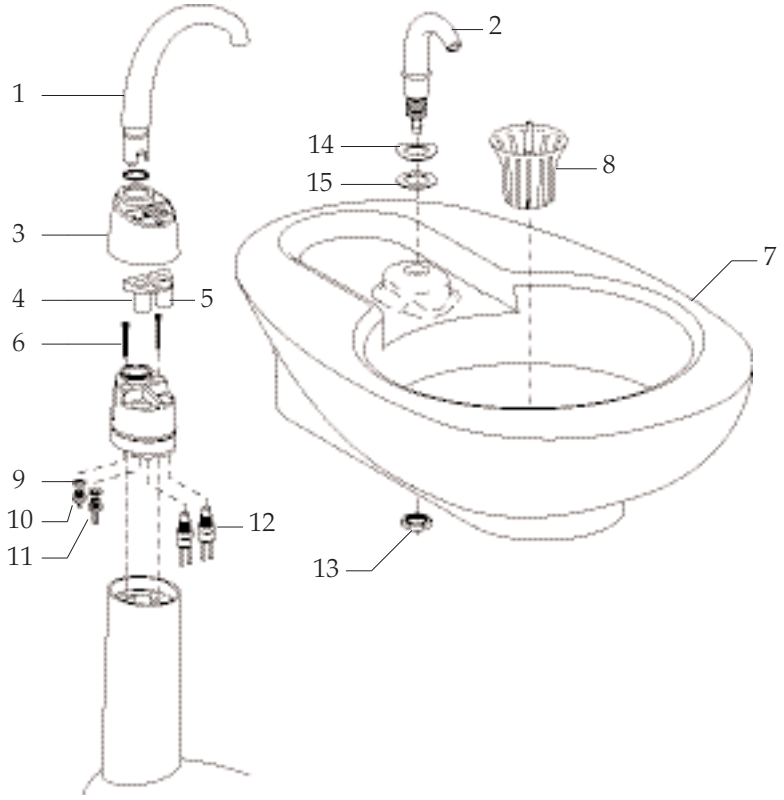


Figure 82. Identification of the upper cuspidor components.

Lower Assembly

Item #	Part Number	Description
1	13.0403.00	Air trap valve assy
2	77.0236.00	Bracket, hold down
3	001.088.00	Screw
4	77.0108.00	Top housing
5	12.0991.00	Drain seal
6	002.082.03	Screw
7	004.141.00	Washer
8	013.061.01	Spring
9	77.0040.00	Cuspidor drain
10	022.090.00	Durr connector clip
11	035.053.01	O-ring, pkg 10
12	77.0109.00	Bottom housing
13	005.106.00	Screw
14	023.811.00	Restrictor barb
15	004.005.02	Washer, pkg 10

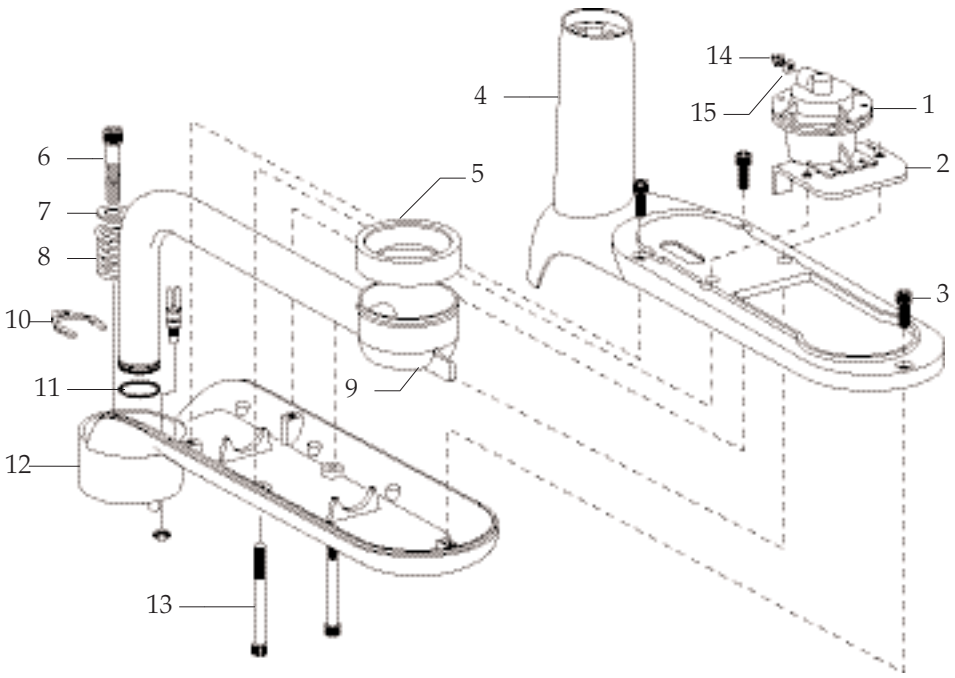


Figure 83. Identification of the lower cuspidor components.

Cuspidor Fill/Rinse Manifold (P/N 38.1803.00)

The cuspidor fill/rinse manifold assembly is mounted inside the support center.

Item #	Part Number	Description
1	041.660.00	Solenoid, 24 VAC
2	023.804.00	Barb, 5/16"
3	38.1794.00	Block, fill/rinse/mix
4	75.0222.00	Stem, flow adjustment
5	002.105.00	Screw, button head socket
6	004.005.02	Washer, pkg 10
7	021.016.04	Plug, hex head, pkg 10

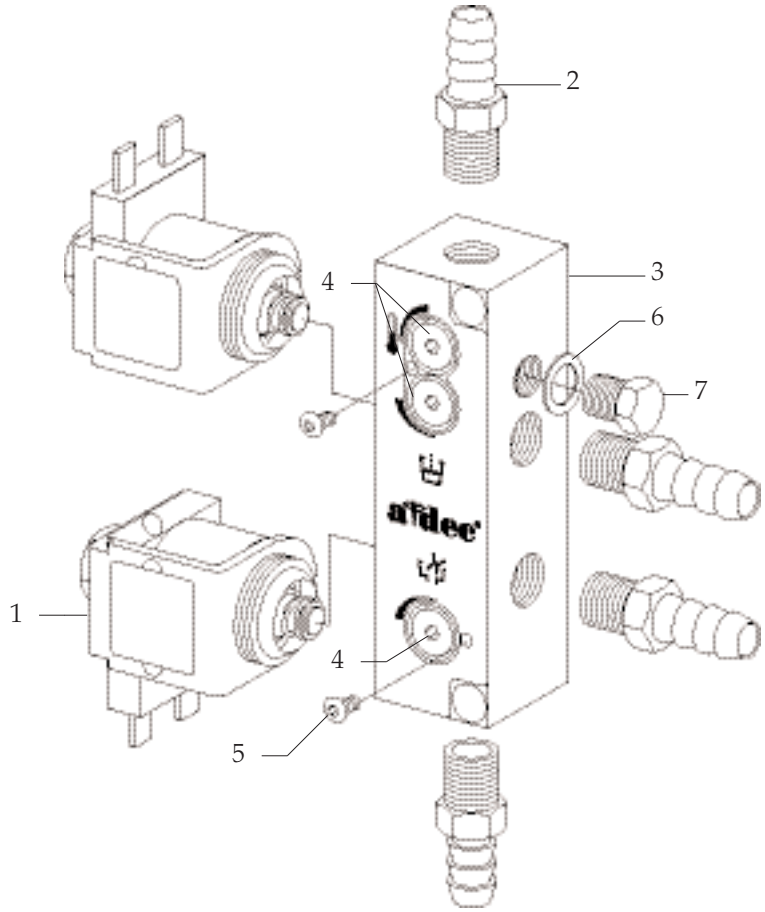


Figure 84. Identification of the fill/rinse components.

How to Adjust the Cuspidor Timing

Cup Fill and Bowl Rinse Functions

Cup fill and bowl rinse timing can be reprogrammed using a touchpad or the footswitch program button and the appropriate button on the cuspidor tower.

The cup fill function allows water to flow from the cuspidor cup fill spout into a cup. Quickly press the **Cup Fill** button to activate a timed operation. A long press activates a manual operation.

The cup fill will only run a maximum of two minutes in the manual operation mode.

The bowl rinse function provides rinse water for the cuspidor bowl. A quick press of the bowl rinse button activates a timed operation. A long press activates the manual operation. If the button is pressed twice in less than two seconds, the continuous operation will be activated. To stop the continuous bowl rinse operation, press the bowl rinse button once. There is no maximum time limit for this function.

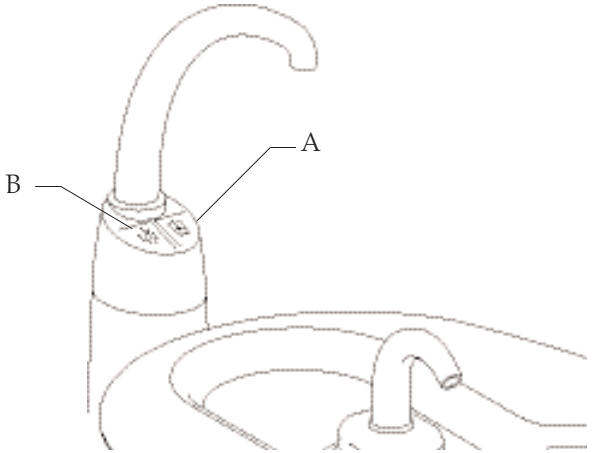


Figure 85. Cuspidor buttons for cup fill and bowl rinse. (A) cup fill; (B) bowl rinse

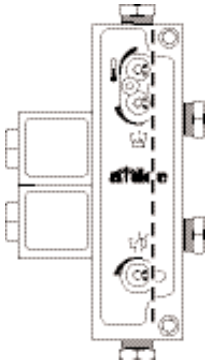
How to Troubleshoot the Cuspidor

Tips and troubleshooting information are listed in the tables to assist in diagnosing cuspidor problems. These tables are not intended to cover every situation, but do include the most common problems that may be encountered.

LED	Status	Function
DS1 - AC Power LED	Off	No 24 VAC power, tripped circuit breaker, power supply turned Off, no line voltage
	Green, steady	24 VAC at terminal strip
DS2 - Status LED	Off	System is not functioning, no power or circuit board has failed
	Green, steady	Normal condition
DS3 - Data LED	Off	No DCS communication, not connected to the data communication system, the DCS has failed
	Green, steady	Active DCS detected
	Green, blinking	Valid DCS message
DS4 - Auxiliary relay LED	Off	Auxiliary relay is off
	Yellow	Auxiliary relay is on
DS5, **DS6** - Bowl rinse/cup fill relays	Off	Relay is off
	Yellow	Relay is on
DS7 - Cuspidor limit switch LED	Off	Limit switch is not activated (closed)
	Red	Limit switch is activated (open)

Problem	Possible Cause	Action
Water drips from the cup fill spout	The cup fill solenoid has failed or the solenoid seat in the manifold has been damaged	Using the master On/Off toggle, turn the unit OFF. Use a syringe to bleed the dental unit water pressure. Remove the cup fill solenoid. If the manifold seat is good, replace the cup fill solenoid. If the manifold seat is damaged, replace the manifold.
Water drips from the bowl rinse spout	The bowl rinse solenoid has failed or the solenoid seat in the manifold has been damaged	Close the manual city water shutoff. Use the master On/Off toggle to turn the unit OFF and remove the bowl rinse solenoid. If the manifold seat is good, replace the bowl rinse solenoid. If the manifold seat is damaged, replace the manifold.
Cup fill and bowl rinse functions are switched at the touchpad and tower buttons	The cuspidor water solenoid connectors are reversed on the cuspidor circuit board	Switch solenoid connections at **P6** and **P7**.
Cup fill and bowl rinse functions are switched at the tower buttons only (touchpads operate normally)	The cuspidor tower switch connectors are swapped on the cuspidor circuit board	Switch tower switch connections at **P2** and **P3**.
Water runs constantly from either the cup fill or bowl rinse spout and the red LED (**DS7**) is illuminated on the cuspidor circuit board	The cuspidor stop switch connector is swapped with one of the cuspidor tower switch connectors	The red LED (DS7) on the cuspidor circuit board is illuminated. Disconnect all three switch connectors from the cuspidor circuit board. One at a time, connect each of the switch connectors to the cuspidor circuit board until the red LED goes out. Then connect one of the remaining switch connectors to connector **P3** on the cuspidor circuit board, and the other switch connector to **P2**. Verify that a cup fill cycle runs when requested from the cuspidor tower cup fill button. If the bowl rinse runs, swap the two switch connections to the cuspidor circuit board.
Cup fill and bowl rinse functions are switched at the touchpad only (tower buttons operate normally)	The cuspidor water solenoid connectors and the cuspidor tower switch connectors are swapped.	Switch the solenoid connections at **P6** and **P7**. Switch the tower switch connections at **P2** and **P3**.

Problem	Possible Cause	Action
Cup fill spout sputters air/water	The self-contained water bottle is empty or near empty	Refill the bottle.
The bowl rinse function works, but the cup fill spout sputters excessively, and does not work from the cuspidor cup fill button or the touchpad	The cuspidor air trap valve is faulty	Remove and replace the air trap valve.
Cuspidor works but the red LED (DS7) on the cuspidor circuit board is illuminated	The cuspidor stop switch is activated or the wiring is faulty	Remove any obstacles from under the cuspidor bowl. Disconnect the cuspidor stop switch from **P4** on the cuspidor circuit board; install the jumper from **P1** on the cuspidor circuit board. If the red LED on the cuspidor circuit board goes out, the cuspidor stop switch or wiring is faulty and must be replaced.
Bowl rinse button on the cuspidor tower does not work, but the function does work from the touchpad	Cuspidor tower bowl rinse button assembly is faulty or is disconnected from the cuspidor circuit board **P2** connector	Visually inspect the cuspidor circuit board. Ensure that the cuspidor tower switches are connected. • **P2** - Bowl rinse switch • **P3** - Cup fill switch If the switches are connected, check the continuity of the bowl rinse switch with an Ohm meter. With the bowl rinse switch held down (closed),it should measure less than ten Ohms. If it measures "open" across the closed switch, remove and replace the bowl rinse switch assembly (P/N 43.0010.00). **NOTE**: Switching switch assemblies at **P2** and **P3** allows verification that the switch assembly is defective.
Cup fill button on the cuspidor tower does not work but the function does work from the touchpad	Cuspidor tower cup fill button assembly is faulty or is disconnected from the cuspidor circuit board **P3** connector	Visually inspect the cuspidor circuit board, ensure that the cuspidor tower switches are connected: • **P2** - Bowl Rinse Switch • **P3** - Cup Fill Switch If the switches are connected, check the continuity of the cup fill switch with an Ohm meter. With the cup fill switch held down (closed), it should measure less than ten Ohms. If it measures "open" across the closed switch, remove and replace the cup fill switch assembly (P/N 43.0010.00). **NOTE**: Switching switch assemblies at **P2** and **P3** allows verification that the switch assembly is defective.

Problem	Possible Cause	Action
Inadequate or excessive cup fill water flow	The cup fill water flow needs adjustment	Open the cup fill flow controls for full water flow. Turn the flow controls to adjust the water flow.  Figure 86. Line up the indicator dots on the flow controls to adjust.
	The self-contained water system 40 psi regulator has failed	The 40 psi regulator can be tested as follows: 1. Turn the dental unit OFF using the master On/Off toggle. 2. Remove the water bottle from the dental unit and set it aside. 3. Remove the air bleed setscrew from the water bottle cap assembly and set it aside. 4. Install an 1/8" barb with washer in the port where the air bleed setscrew was removed. 5. Connect an air pressure gauge to the 1/8" barb using the 1/8" tubing. 6. Turn the dental unit ON. The air pressure reading on the gauge should be 35 – 40 psi. 7. Turn the dental unit OFF using the master On/Off toggle. 8. Remove the air pressure gauge from the 1/8" barb and washer from the air bleed setscrew port. 9. Reinstall the air bleed setscrew and replace the water bottle (continued on next page).

Problem	Possible Cause	Action
Inadequate or excessive cup fill water flow (continued)	The self-contained water system 40 psi regulator has failed	If a reading of 35 – 40 psi could not be obtained at the air bleed setscrew port, the 40 psi regulator is faulty and must be replaced as follows: 1. Turn the dental unit OFF using the master On/Off toggle on the delivery system. 2. Remove the water bottle cap assembly from the post or side support. 3. Remove and replace the 40 psi regulator. 4. Reinstall the water bottle cap assembly and water bottle. 5. Turn the dental unit ON and test the cup fill function for adequate water pressure.
	The self-contained water system air bleed set screw is partially clogged with debris	1. Use the master On/Off toggle, to turn the dental unit OFF, and remove the water bottle. 2. Remove the air bleed setscrew from the water bottle cap assembly and clean it of debris, or replace it. 3. Reinstall the setscrew in the water bottle cap assembly and replace the water bottle. 4. Turn the dental unit ON and test the cup fill function.
Inadequate bowl rinse water flow	The bowl rinse water flow needs to be adjusted, the water filter element is partially plugged, or there is a kinked hose	Adjust the bowl rinse flow clockwise to increase water flow, or counterclockwise to decrease flow, (one full turn from minimum to maximum). To check for plugged water regulator filter element. 1. Close the city water manual shut-off valve in the floor box and bleed the cuspidor bowl rinse water pressure, using the bowl rinse function. 2. Turn the dental unit OFF using the master On/Off toggle on the delivery system and remove the water regulator filter element cap. Remove and discard the filter element. 3. Install a new filter element on the water regulator and reinstall the filter cap. 4. Open the city water manual shut-off valve. Turn the dental unit ON using the master On/Off toggle, and test the bowl rinse function for adequate water flow. Check for a restriction downstream from the filter. Locate and eliminate any kinks in the blue 5/16" bowl rinse water tube.

Problem	Possible Cause	Action
Bowl rinse function does not work from the cuspidor tower and/or the touchpad bowl rinse button. The cup fill function does work	The bowl rinse relay on the cuspidor circuit board has failed	At the cuspidor circuit board, swap the water solenoid connectors at **P6** and **P7**. Press the cup fill button on any touchpad or the cup fill switch on the cuspidor tower, if the bowl rinse runs, remove and replace the cuspidor circuit board.
	The cuspidor data line is damaged	Ensure that the cuspidor tower switches are connected: • **P2** – Bowl rinse switch • **P3** – Cup fill switch Disconnect the data line from the cuspidor and press the bowl rinse switch on the cuspidor tower. If the bowl rinse runs; remove and replace the cuspidor data line.
	The bowl rinse solenoid has failed	Remove and replace the bowl rinse water solenoid.
Cup fill function does not work from the cuspidor tower and/or from any touchpad cup fill button. The bowl rinse function does work	The cup fill relay on the cuspidor circuit board has failed	Swap the water solenoid connectors at **P6** and **P7**, at the cuspidor circuit board. Press **Bowl Rinse** on any touchpad or the bowl rinse switch on the cuspidor tower. If the cup fill runs, remove and replace the cuspidor circuit board.
	The cuspidor data line is damaged	Ensure that the cuspidor tower switches are connected correctly: • **P2** – Bowl rinse switch • **P3** – Cup fill switch Disconnect the data line from the cuspidor and press the cup fill switch on the cuspidor tower. If the cup fill runs; remove and replace the cuspidor data line.
	The cup fill water solenoid has failed	Remove and replace the cup fill water solenoid.

How to Identify Support Side Water Bottle Components

The self-contained water bottle mounts inside the support center module. To access the water bottle, swing open the end cover of the support center. The support side water bottle uses the same cap housing assembly to mount the water bottle as the front mount self-contained water bottle, but without the outer housing.

CAUTION: Use caution when using the self-contained water system with any dental units equipped with components that might fail when the water supply is interrupted. Some types of scalers and water heaters are examples of components that can be permanently damaged if operated without a continuous water source. A-dec does not recommend using saline solutions, mouth rinses, or any chemical solutions, not specified by A-dec, in the A-dec self-contained water system. These may damage the water system components and cause the failure of the dental unit.

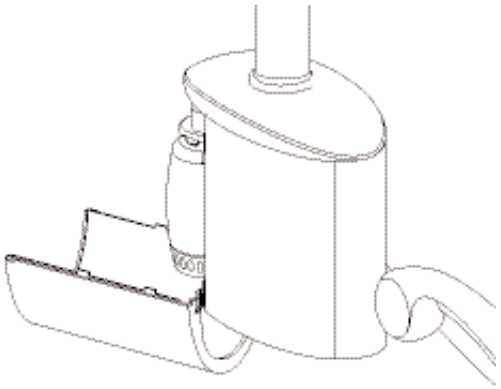


Figure 87. Swing open the end cover to access the water bottle.

How the Self-Contained Water Bottle Works

The A-dec self-contained water bottle uses air pressure to force water from the bottle into the water pick-up tube and out to the chair air/water manifold. There it connects to various water outputs such as the handpiece control block, syringe, and the cuspidor cup fill.

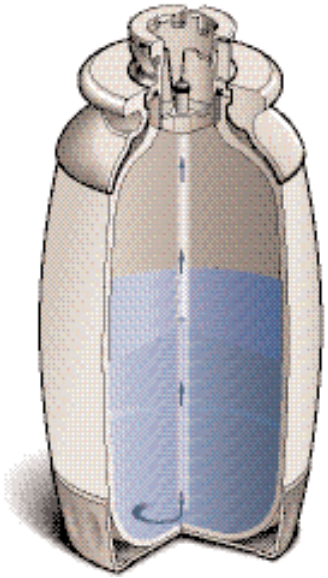


Figure 88. How the water bottle works.

Support Side Water Bottle

The one-piece design of the A-dec water bottle reduces contamination when maintaining the system by not touching the pick-up tube during refilling and maintenance.

WARNING: Use only A-dec water bottles. Do not use other brands, or damaged bottles. They can pose a serious safety hazard if broken while pressurized.' water bottles cannot withstand heat sterilization. Attempting to do the bottle and the sterilizer.

Item #	Part Number	Description
1	035.048.01	O-ring, pkg 10
2	14.0457.00	Connector
3	14.0453.00	Funnel
4	010.002.00	Retaining ring
5	031.130.01	O-ring, pkg 10
6	14.0458.00	Clamp
7	005.110.00	Screw
8	14.0466.00	Water bottle

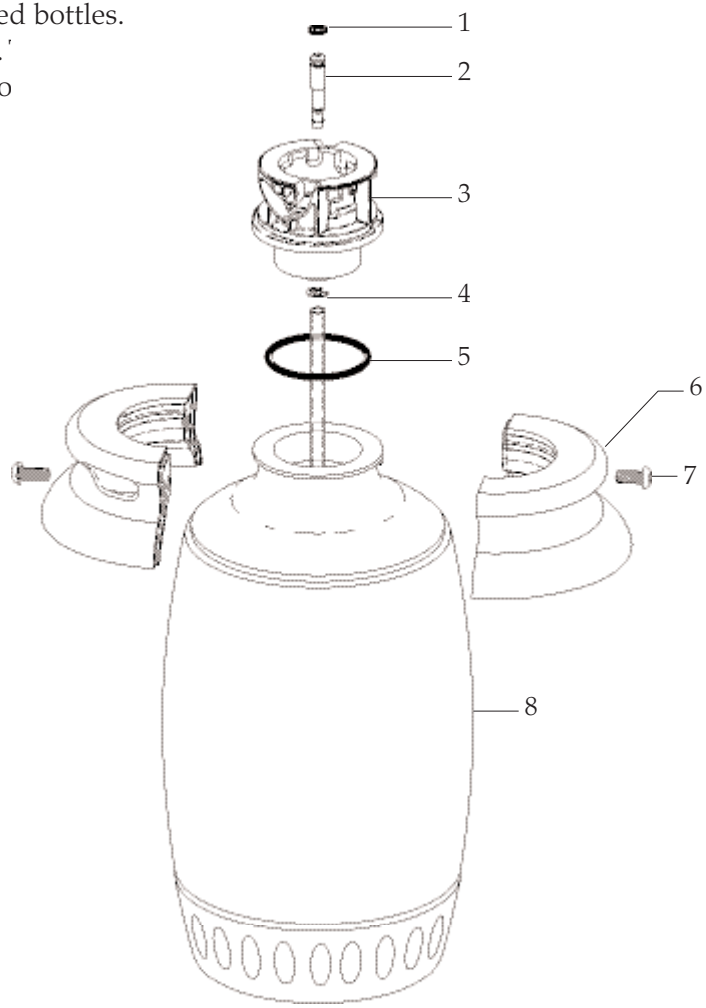


Figure 89. Identification of the water bottle components.

How to Identify Amalgam Separator Housing Components

The A-dec 500 amalgam separator housing is attached to the support center. Use the support center nose cover on the amalgam separator housing after installation.

Several brands of amalgam separators can be mounted inside the A-dec 500 amalgam separator housing. Follow the manufacturers instructions for the specific separator being installed.

Item #	Part Number	Description
1	77.0011.00	Cover, top
2	77.0009.00	Cover, side (both sides)
3	77.0037.00	Cover, nose

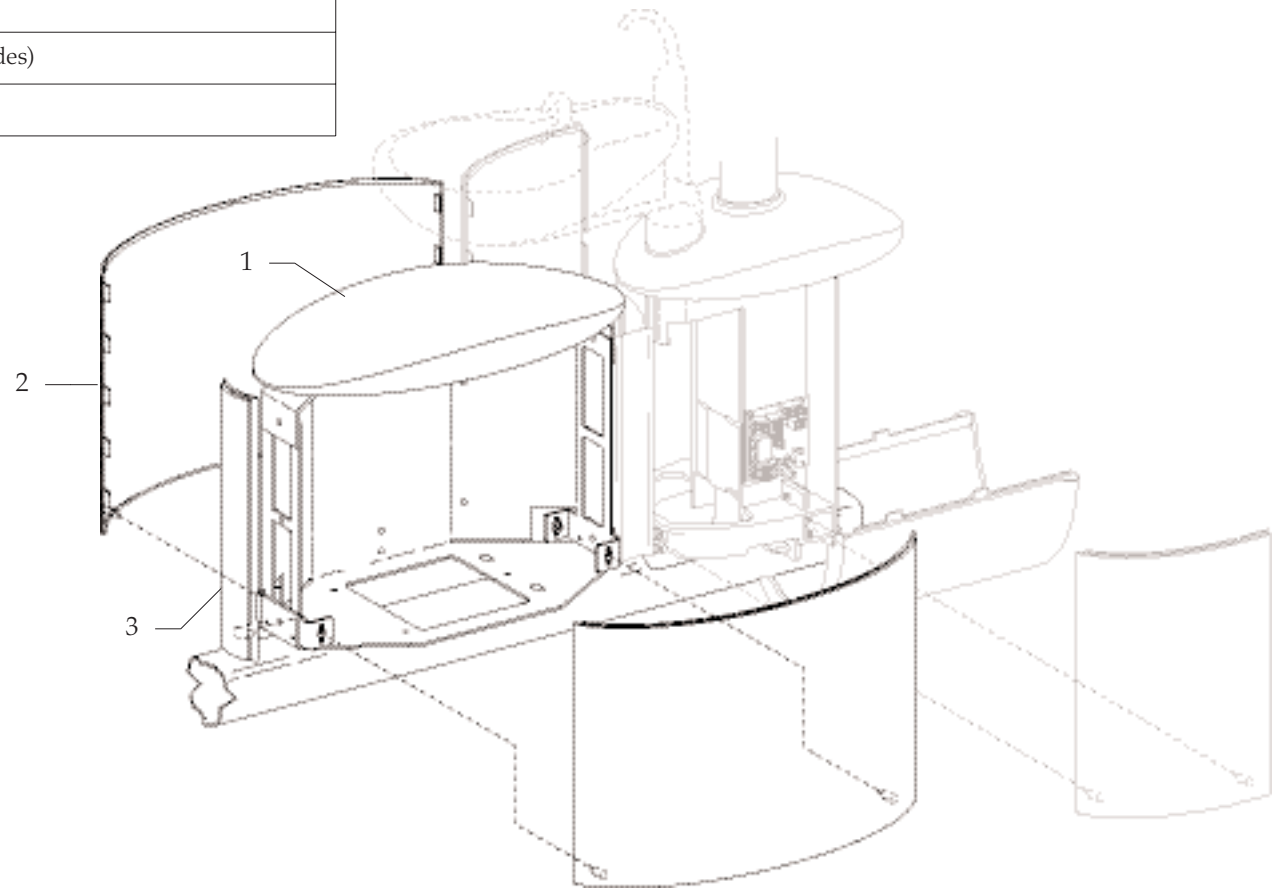


Figure 90. Identification of the amalgam separator housing components.

Item #	Part Number	Description
1	002.073.00	Sockethead screw 10-32 x 3/4
2	001.089.00	Sockethead screw 1/4-20 x 5/8

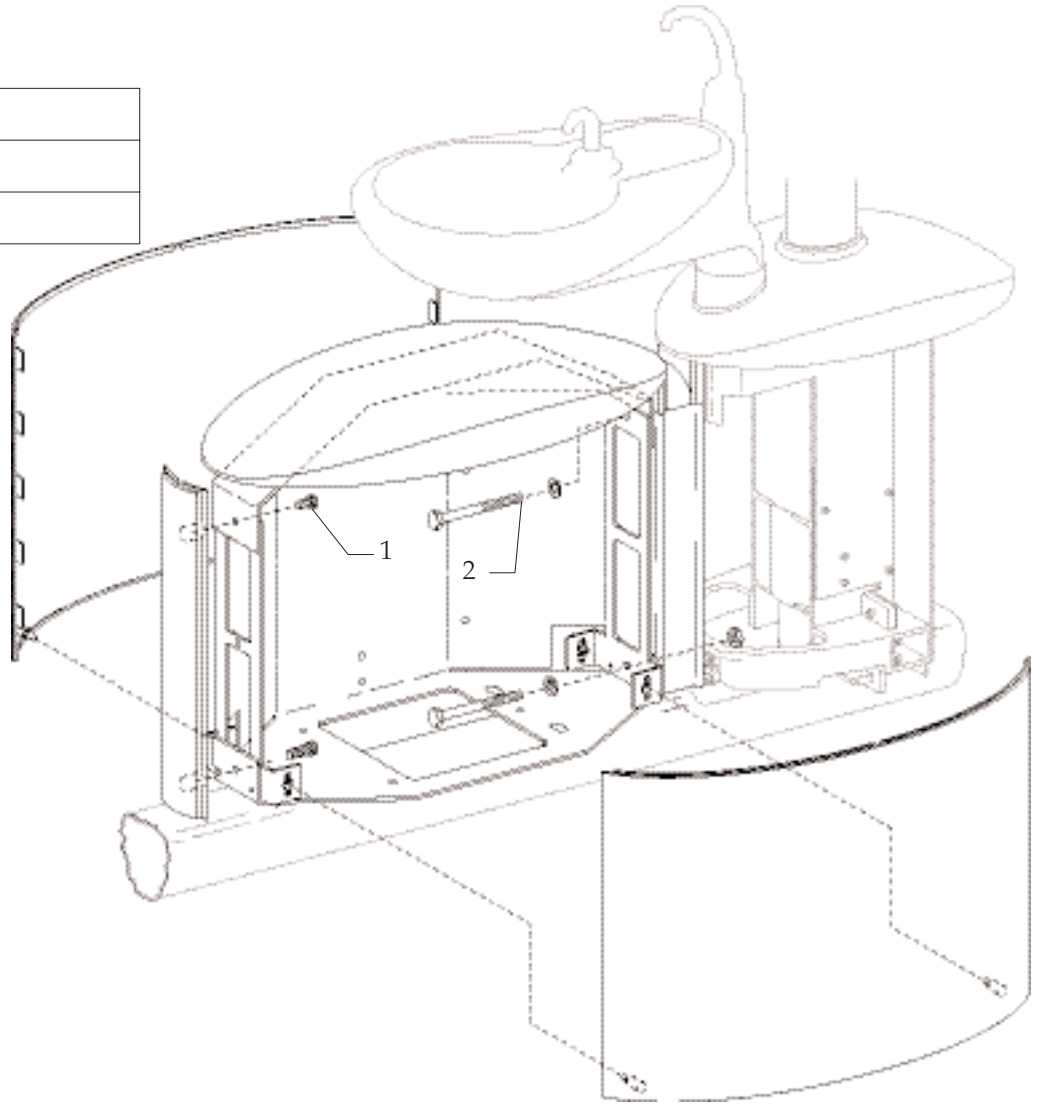


Figure 91. Identification of the amalgam separator housing mounting hardware.

How to Identify Support Side Monitor Mount Components

Minimum Monitor Specifications:

Digital Monitor Requirements

- Medical-grade monitor
- 15" diagonal active display
- 1024 x 768 resolution
- Digital inputs
- VESA mounting compliant
- SVGA

Analog Monitor Requirements

- Color palette adjustments
- 13" HDTV flat panel for analog integration
- NTSC or PAL format
- Video inputs
- Composite video display capability
- RCA connection port

Item #	Part Number	Description
1	28.1501.00	Cap
2	001.088.00	Screw, adjustment
3	77.0213.00	Small cover, Surf 4
4	77.0026.00	Monitor mount cover
5	77.0102.00	Bearing, upper
6	77.0103.00	Bearing, lower
7	77.0201.00	Rotation stop
8	77.0112.00	Pivot assembly
9	77.0113.00*	VESA adapter
10	77.0199.00	Monitor post
11	*	Rigid arm
12	77.0114.01	Support arm
13	002.130.00	Button head screw
14	002.094.00	Screw
15	006.022.00	Nut
16	77.0115.00*	Monitor bracket
17	77.0116.00*	Monitor handle

* Item not for sale.

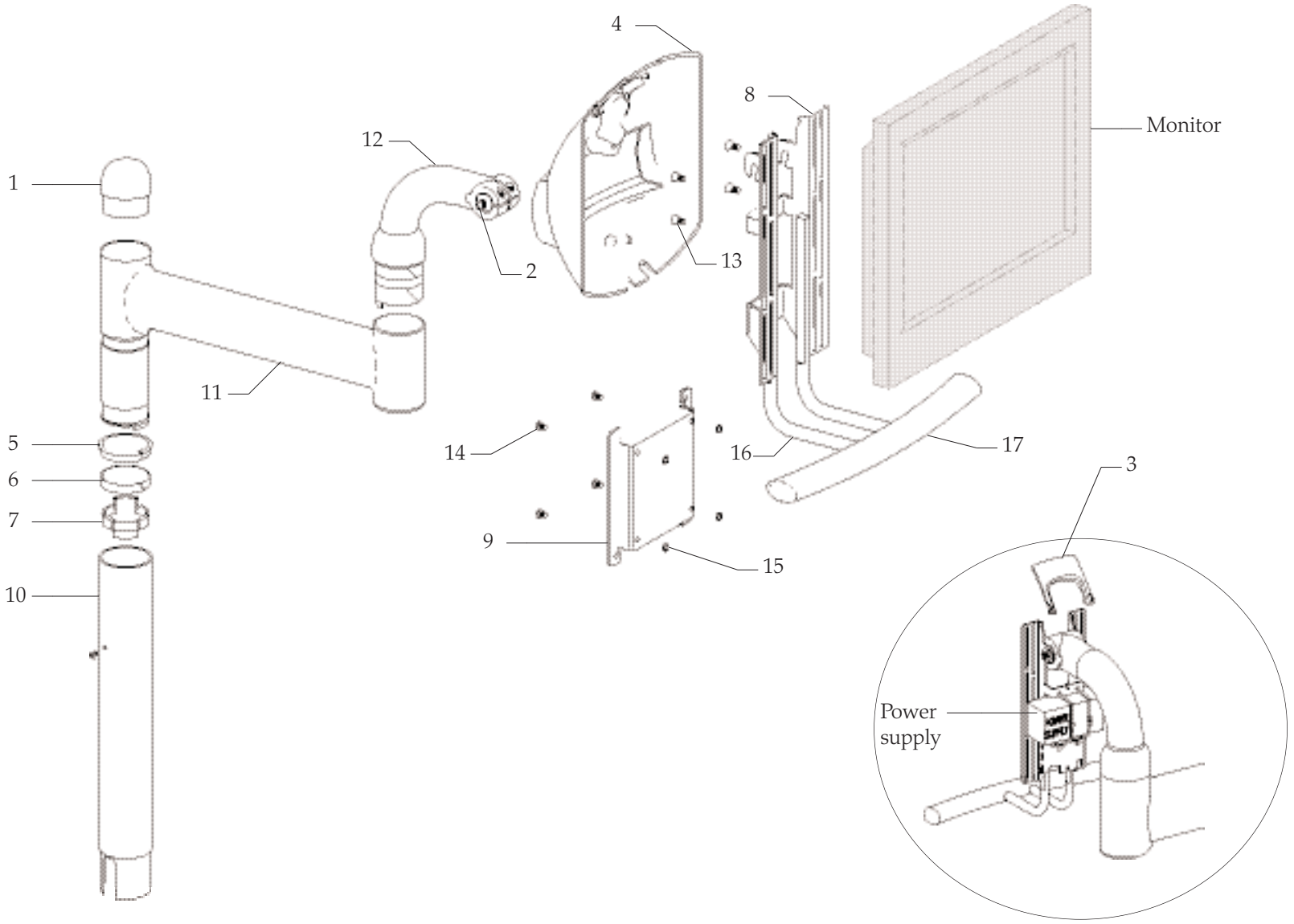


Figure 92. Identification of the support side monitor mount components.

Support Side Monitor Tray Holder

Item #	Part Number	Description
1	005.157.00	Screw
2	004.019.00	Washer
3	004.172.00	Washer
4	016.102.00	Thrust bearing
5	77.0365.00	Hub
6	004.242.00	Washer
7	77.0197.00	Extender
8	004.021.00	Washer
9	77.0189.00	Arm
10	77.0190.00	Bracket
11	77.0198.00	Cover
12	002.112.00	Screw
13	005.012.03	Screw
14	77.0071.00	Tray holder, large
15	75.0017.00	Standard tray holder

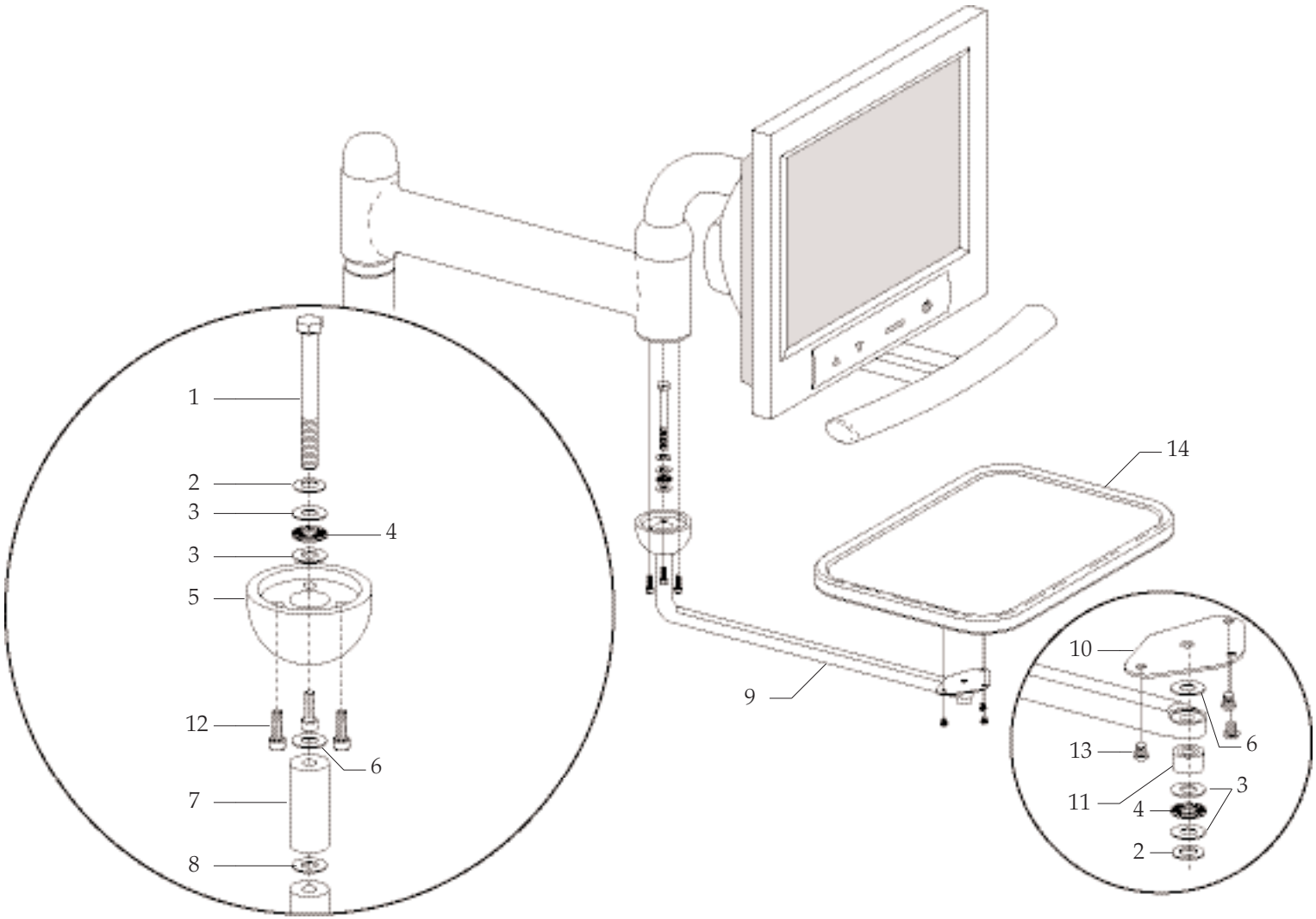


Figure 93. Identification of monitor tray holder components.

How to Adjust Support Side Mounted Monitor and Tray Holder

Monitor Mount Tilt/Friction Adjustments

There are two adjustments that can be made to the monitor: tilt and drift friction.

Tilt Friction

The tilt friction can be adjusted by tightening or loosening the tilt friction adjustment screw located on the top of the monitor mount.

Drift Friction

The drift friction can be adjusted by tightening or loosening the drift adjustment screw located on the top of the monitor mount.

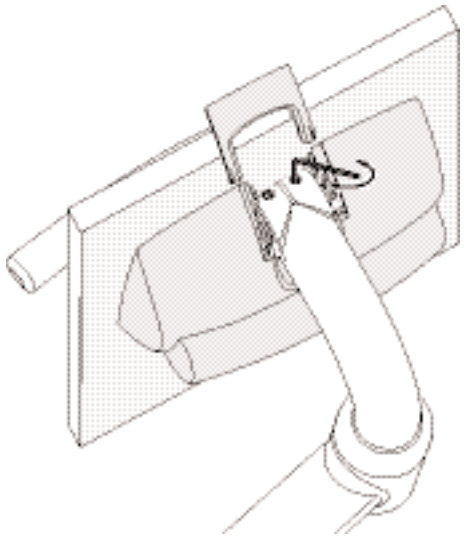


Figure 94. Monitor tilt and friction adjustments.

Tray Holder Tension Adjustment

The tension adjustment screw for the tray holder is located in the hub of the tray holder arm.

1. Locate the small hole in the tray holder hub.
2. Insert a 5/32" hex key through the hole.
3. Rotate the tray support arm to adjust the tension, (clockwise to increase tension — counterclockwise to decrease tension).

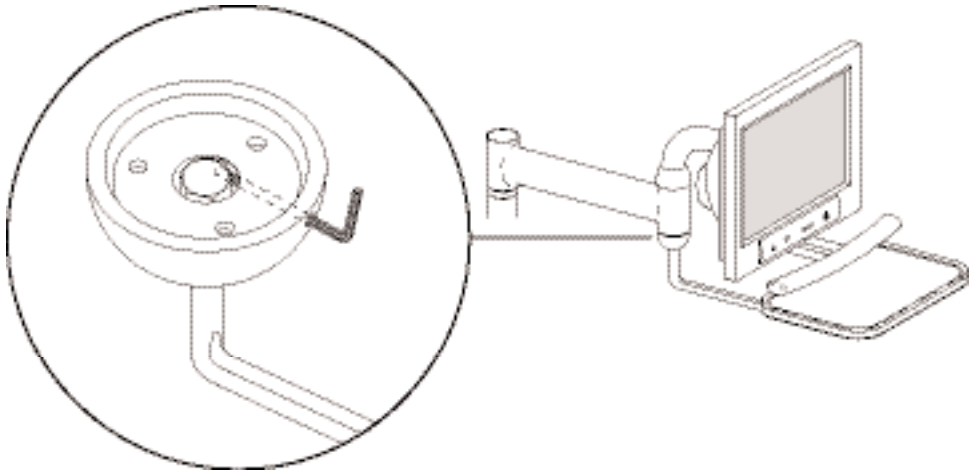


Figure 95. Monitor tray adjustment.